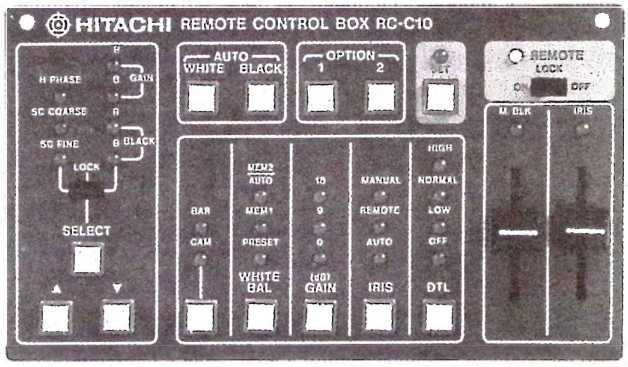
OPERATION MANUAL

RC-C10

REMOTE CONTROL BOX



Hitachi Denshi, Ltd.

SAFETY INSTRUCTIONS

Carefully read all safety messages in this manual and safety instructions on your equipment. Follow recommended precautions and safe operating practices.

SAFETY ALERT SYMBOL

This is the "Safety Alert Symbol." This symbol is used to call your attention to items or operations that could be dangerous to you or other persons using this equipment. Read these messages and follow these instructions carefuly.

It is essential that you read the instructions and safety regulations before you attempt to assemble or use this equipment.

The definitions of signal words are as follows:

⚠WARNING — **WARNING: Personal danger**
Warning notes indicate any condition or practice, which if not strictly observed, could result in personal injury or possible death.

CAUTION — **CAUTION: Possible damage to equipment**
Caution notes indicate any condition or practice, which if not strictly observed or remedied, could result in damage or destruction of the equipment.

NOTE — **NOTE: Notes indicate an area or subject of special merit, emphasizing either the product's capabilities or common errors in operation or maintenance.**

⚠WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS REMOTE OPERATION UNIT TO RAIN OR MOISTURE.

AVERTISSEMENT

Afin d'éviter tout risque d'incendie ou d'électrocution, ne pas exposer l'appareil à la pluie ou à l'humidité.
Afin d'écarter tout risque d'électrocution, garder le coffret fermé. Ne confier l'entretien de l'appareil qu à un personnel qualifié.

VORSICHT

Um Feuergefahr und die Gefahr eines eiektrischen Schiages zu vermeiden, darf das Gerät weder Regen noch Feuchtigkeit ausgesetzt werden.
Um einen elektrischen Schiag zu vermeiden, darf das Gehäuse richt geöffnet werden. Überiassen Sie Wartungsarbeiten stets nur einem Fachmann.

Note: The model and serial numbers of your Remote control box, are important for you to keep for your convenience and protection. These numbers appear on the name plate located on the rearpanel of the Remote control box. Please record these numbers in the spaces provided below, and retain this manual for future reference.

Model No. _____ **Serial No.** _____

RC-C10 for U. S. A.

These products have been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. These PRODUCTS generate, use, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of these products in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING

Changes or modifications not expressly approved by Hitachi Denshi responsible for compliance could void the user's authority to operate the equipment.

RC-C10 for Canada

These products do not exceed the class A limits for radio noise emissions from digital apparatus as set out in the radio interference regulations.

Le présent appareil n'émet pas de bruits radioélectriques dépassant les limités applicable aux appareils numériques de classe A prescrites dans le règlement sur le brouillage radioélectrique édicter par le ministère des communications du canada.

RC-C10

Bescheinigung des Herstellers/Importeurs

Hiermit wird bescheinigt, daß KAMERAFERNBEDIENVNG RC-C10 in Übereinstimmung mit den Bestimmungen der Amtsblattverfügung Nr. 1046/1984 funkentstört ist. Der Deutschen Bundespost wurde das inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

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General

• General

The RC-C10 is a remote control box designed for use with the Hitachi color cameras FP-C10/C10F and HV-C10. The RC-C10 can also be used with FP-C1/C2 Series, Z-ONE and Z-ONE.A.

• Features

- Improved operability
  New design key switches and LED display improve operability.
- Memory backup
  Serial data is stored in the built-in E²PROM (backup battery notneeded). Thus, the serial data is retained during power off and is fed out at power on.
- Incorporable into RU-C10
  The RC-C10 can be incorporated into the remote control unit RU-C10 for operation.
- Connectable to RU-C1 and RU-C10 using cable
  The RC-C10 can be connected to the remote operation units RU-C1 and RU-C10 using a cable.
- Three units built in rack mount adaptor
  Three RC-C10's can be built in the rack mount adaptor MA-C10.

Notes to users

Notes for safe operation

- Do not modify this remote control box or do not use this box with the cover removed to avoid possible failure.
- If this box should show any abnormality, be sure to turn off the controlbox, then contact your nearest Hitachi Denshi service representative.

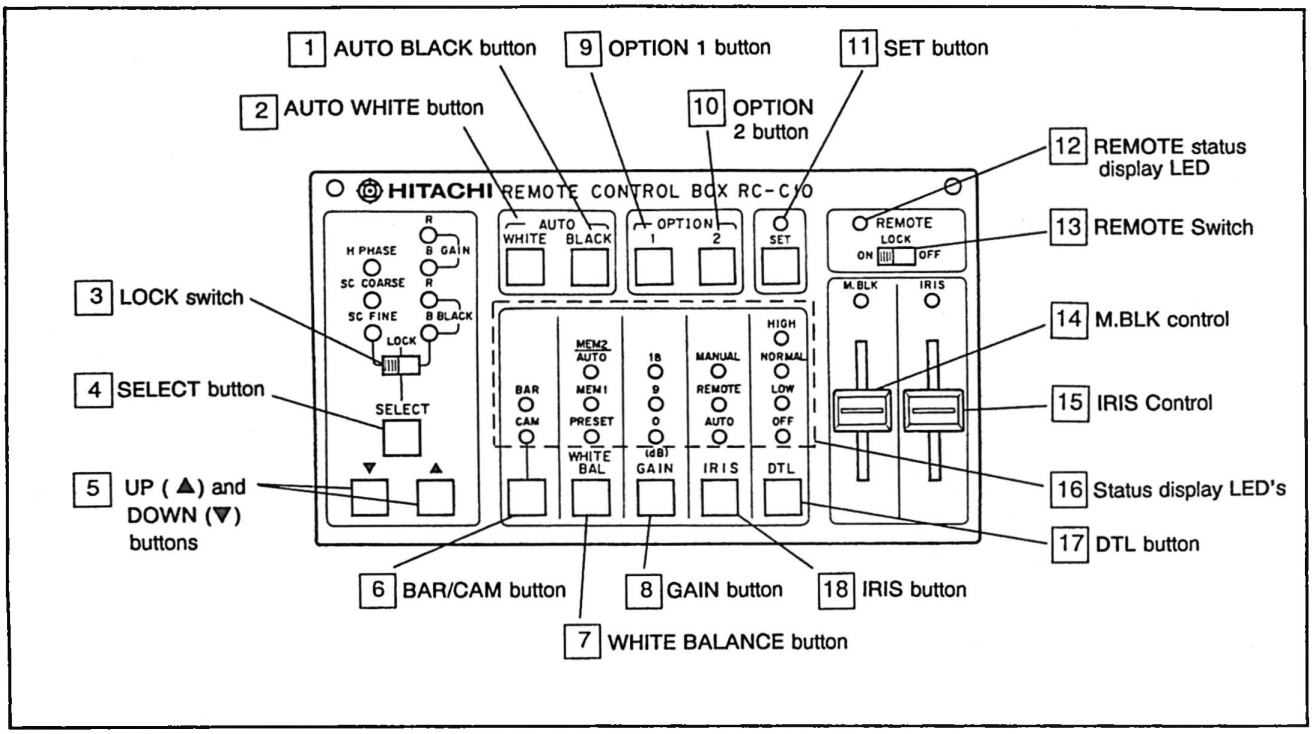
Notes for operation

- When the remote control box RC-C10 is connected to the portable color cameras FP-C10F/-C10 and HV-C10 the maximum cable length between the RC-C10 and the FP-C10F/-C10 is 200m (using the HC-5B2 cable). However, when the RC-C10 is connected to the remote operation unit RU-C1, use the RC-C10 within a distance of 15m.

Standard composition

Remote control box RC-C10	1
Connector (JMH0064, 4-pin, female) for cable	1
Connector (JMH0065, 4-pin, male) for cable	1
Operation manual	1

Name and function of each section



1 AUTO BLACK button

Press this button for automatic adjustment of black balance.

2 AUTO WHITE button

Press this button for automatic adjustment of white balance.

Set the white balance mode to MEM1 or MEM2

3 LOCK switch

Set this switch to the left for adjustment of GL. Set this switch to the right for fine adjustment of RB GAIN and BLACK. When setting this switch to the middle (LOCK), neither adjustment is available.

4 SELECT button

When the LOCK switch 3 is set to the left, the following items can be set with the SELECT button and the UP and DOWN buttons.

- H PHASE (horizontal sync phase)
- SC COARSE (coarse adjustment of subcarri
- SC FINE (fine adjustment of subcarrier phase)

When the LOCK switch 3 is set to the right, the following items can be finely adjusted with the SELECT button and the UP and DOWN buttons.

- R GAIN
- B GAIN
- R BLACK
- B BLACK

5 UP (▲) and DOWN (▼) buttons

Use these buttons to adjust the modes selected with the LOCK switch 3 and the SELECT button 4 (The LED lights to show the selected mode.)

6 BAR/CAM button

Use this button to select the output signal of the camera.

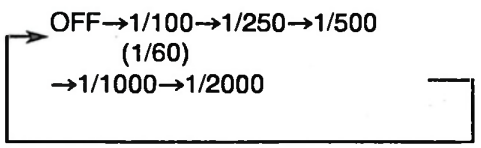
- BAR: Feeds out the color bar signal.
- CAM: Feeds the video signal of a picture shot by the camera

7 WHITE BALANCE button (refer to page 4)
Use this button to select the white balance mode.

8 GAIN button
When illumination is low, use this button to increase the sensitivity of a camera to +9dB or +18dB. Set this switch to 0dB for normal use.

9 OPTION 1 button

- When connecting to FP-C10/C10F, HV-C10, Z-ONE, and Z-ONE·A
  Press this button to change the shutter speed in the following order.



( ):PAL

- When connecting to FP-C1/C2 Series
  use this button to operate auto setup.

10 OPTION 2 button

- When connecting to FP-C10/C10F, HV-C10, Z-ONE, and Z-ONE·A use this button as the CHECK switch.
- When connecting to other cameras
  This button is unavailable.

11 SET button
Press this button, and the LED above the button lights for about one second. The control data at pressing is stored.

12 REMOTE status display LED

13 REMOTE switch

- ON (LED 12 lights red.)
  The camera can be normally controlled using the RC-C10.
- LOCK (LED 12 lights green.)
  All the functions of the RC-C10 are disabled. The control data before lock is fed out to the camera. and the camera.
- OFF (LED is 12 turned off)
  The control data is not fed out from the RC-C10 and the camera can be controlled by its controls.

14 M.BLK control (refer to page 4)
Use this control to adjust the master black of the camera.

15 IRIS control (refer to page 4)
Use this control to adjust the iris of the lens.

16 Status display LED's
Press a push button switch under the LED's, and the LED of the selected mode lights.
(LED's within the dotted line rectangle)

17 DTL button
Press this button to set the DTL quantity of the camera.
DTL : OFF, LOW, NORMAL, HIGH

18 IRIS button
Press this button to set the IRIS mode of the lens.
IRIS : AUTO, REMOTE, MANUAL

Adjustment and operation

● Adjustment of M.BLK (master black)

When the lever position is displaced from the already stored position of the black level, M.BLK cannot be adjusted (in this case the LED above the M.BLK control [14] is turned off). Move the lever of the control to the already stored level, then the LED lights to show that the level adjustment is possible

● Adjustment of IRIS

When the lever position is displaced from the already stored position of the iris value, IRIS cannot be adjusted (in this case the LED above the IRIS control is turned off). Move the lever of the control to the already stored level, then the LED lights to show that the adjustment of the iris value is possible

The operation of the IRIS control 15 in the following modes is as follows.

AUTO: Fine adjustment is possible (about +1 stop).

REMOTE: Adjustment from open to close is possible.

MANUAL: The iris cannot be adjusted from the RC-C10

(If the lens switch is set to MANU, the iris can be adjusted withthe IRIS adjustment ring.)

● Operation of UP (▲) and DOWN (▼) buttons

○ To set R/B GAIN and R/B BLACK to the preset values

: Press the UP and DOWN buttons simultaneously, then the LED blinks two times at an interval of about 0.5 sec., and the adjustment value is returned to the preset value. to show the end of the

○ Keep pressing the UP or DOWN button, then the LED starts to blink at an interval of about one sec adjustment range.

● Adjustment of communication rate

○ Remove the cover of the rear of the RC-C10, and you will find digital switches.

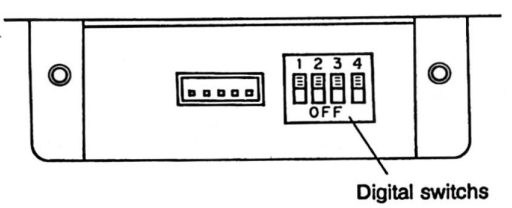
○ Change the transfer speed by setting the switches as shown below.

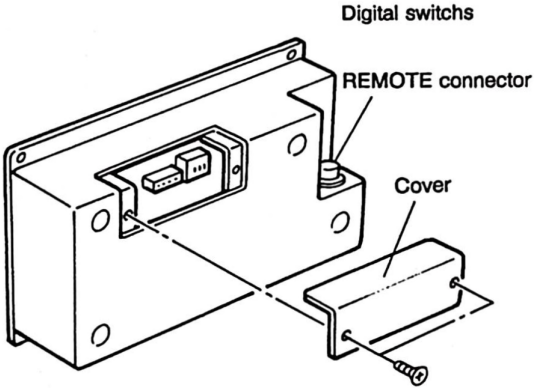
1	2	3	4	Communication rate (bps)
OFF	OFF	OFF	OFF	62.5K
ON	OFF	OFF	OFF	9600
OFF	ON	OFF	OFF	4800
OFF	OFF	ON	OFF	2400

Note:

(1) When switching communication rate, be sure to turn off the RC-C10. Otherwise, the switching of communication rate is not available.

(2) Set the switches to 62.5K bps for normal use (the camera is set to 62.5K bps).





● Functions varying depending on camera

○ The tunctions varies depending on the type of the camera as shown in the table below (the other functions are the same)

Function / Model of camera	OPTION1	OPTION2	DTL	WHITE BAL
FP-C1/C1H FP-C2 CK-2B	AUTO SETUP	No function provided	No function provided	MEM2 MEM1 PRESET
Z-ONE Z-ONE·A	SHUTTER	CHECK	No function provided	MEM2/※AUTO MEM1 PRESET
FP-C10/C10F HV-C10	SHUTTER	CHECK	HIGH NORMAL LOW OFF	※AUTO MEM PRESET

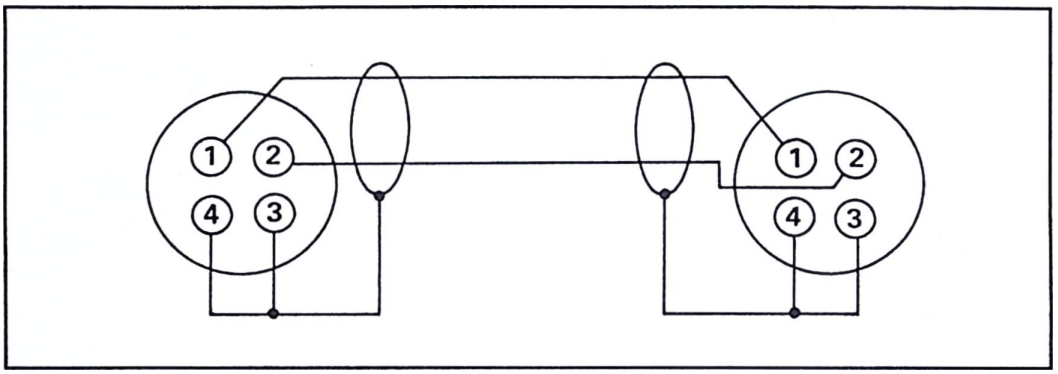
※AUTO : Real-time auto white balance

Note For details of the functions reter to the operation manual of the camera used

Preparation of remote control cable

Prepare the remote control cable by using the two supplied connectors. Use a 2-core shield wire (HC-5B2 made by Hirakawa).

Connect connectors and the wires as shown in the figure wiring diagram below in accordance with the procedures described below. Use the RC-C10 at the maximum cable length of 200m.



Note

Specifications for the 2-core shield wire HC-5B2

Section area of core: 0.5mm2

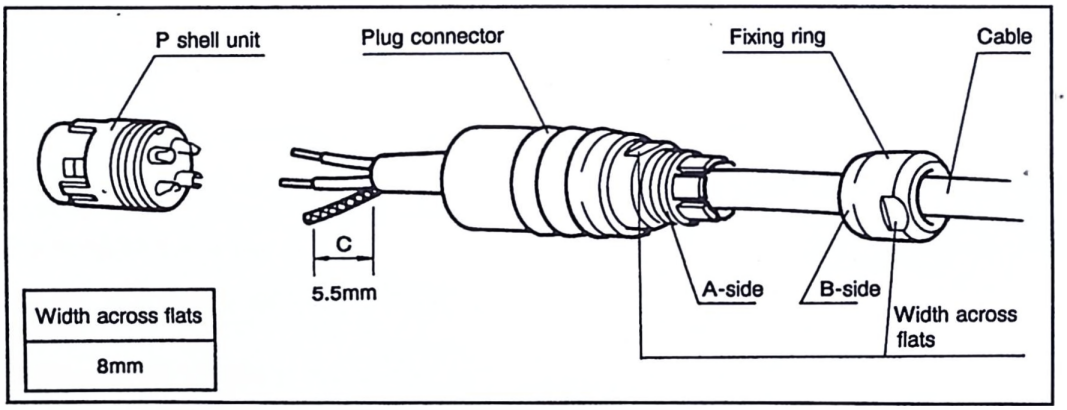
Conductor resistance: Less than 39.9Ω/km

Electrostatic capacitance:

136pF/m approx.(between shield)

72pF/m approx. (between wires)

Outside diameter of 2-core shield wire: Max. 4.75mm



Working procedures

(1) Thread the cable in the fixing ring and the plug connector as shown in the figure.

(2) Insert the P shell unit into the remote control connector of the RC- C10 or the camera, and solder the wires. Engage the plug connector with the screw portion of the P shell unit and fasten the P shell unit by about 15kg-cm with a torque wrench. When fastening the plug connector, loosen the cords of the C-portion.

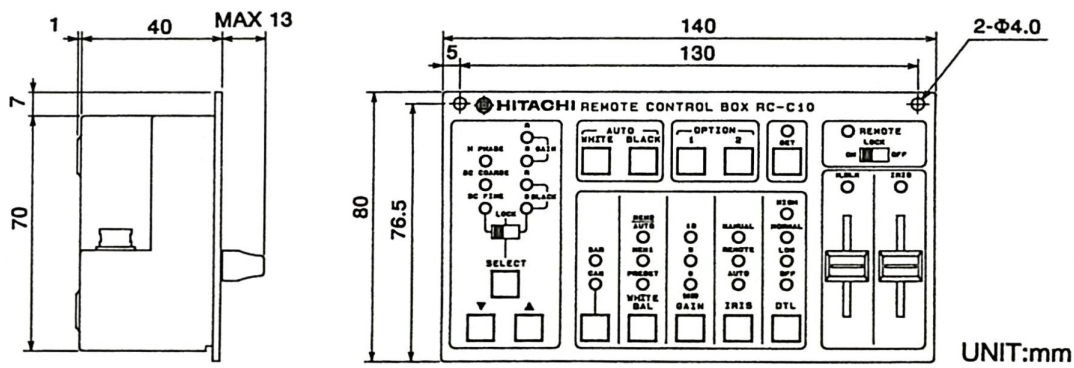
(3) Fasten the fixing ring until the B-side of the plug touches the A-side of the plug body. Thus, the work is complete.

Specifications

- Applicable cameras: FP-C10, FP-C10F, HV-C10, FP-C1,FP-C1H, FP-C2, CK-2B, Z-ONE, Z-ONE· A
- Serial data output: 1.5Vp-p
- Maximum cable length: 200m (when cable HC-5B2 is used)
- Power requirement: 9 to 15V DC
- Ambient temperature: +5 to +40o
- Power consumption: 0.5W approx.
- Weight: 0.5kg (1.1lb) approx.

- Control items
  - MASTER BLACK LEVEL
  - IRIS CONTROL
  - IRIS MODE (AUTO, REMOTE, MANUAL) selection
  - HIGH GAIN (0, +9, +18dB) selection
  - WHITE BALANCE (PRESET, MEMORY1, MEMORY2/AUTO) selection
  - BAR/CAM selection
  - DTL (OFF, LOW, NORMAL, HIGH) selection
  - R GAIN
  - B GAIN
  - R BLACK
  - B BLACK
  - H PHASE
  - SC COARSE
  - SC FINE
  - AUTO BLACK
  - AUTO WHITE
  - OPTION 1 (FP-C10/C10F, HV-C10, Z-ONE, Z-ONE·A SHUTTER)
    (Other cameras: AUTO SETUP)
  - OPTION 2 (FP-C10/C10F, HV-C10, Z-ONE, Z-ONE·A:CHECK ON/OFF)
    (Other cameras: Disabled)
  - SET (Memory set of serial data)
  - REMOTE (OFF, LOCK, ON) selection

- Dimensions



UNIT:mm

- Dimensions: 140(W)x80(H)x40(D)mm
  (5.5×3.2×1.6 in)

Optional accessories

The following optional accessories are available. For details, contact your nearest Hitachi Denshi sales representative.

Remote operation unit	RU-C10
Rack mount adaptor (for three RC-C10's)	MA-C10

Specifications are subject to change without notice.

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